

PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

1-551 U.S. PTO
09/16/82
10/01/98

In re application of : Kazuhiro OTSUKA et al.
Serial No. : To Be Assigned
Filed : Herewith
For : METHOD AND EQUIPMENT FOR EXTRACTING
IMAGE FEATURES FROM IMAGE SEQUENCE

Assistant Commissioner of Patents
Washington, D.C. 20231

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. 1.56

S I R :

Applicants wish to bring to the attention of the Examiner the following publications:

1. Japanese Laid-Open Patent Application No. 10-197543.
2. Japanese Laid-Open Patent Application No. 10-206443.
3. "Statistical and Structural Approaches to Texture", Robert M. Haralick, Proceedings of the IEEE, Vol. 67, No. 5, May 1979, pages 786-804.
4. "A Method for Estimating the Advection Velocity of Radar Echoes Using a simple Weather Radar System", Yoshio Asuma et al., Geophysical Bulletin of Hokkaido University, Sapporo, Japan, Vol. 44, October 1984, pages 23-34.
5. "Experiments for a Very-short-range Prediction of Snowfall Using a Simple Weather Radar System part 1, Outline and Possibility", Yoshio Asuma et al., Geophysical Bulletin of Hokkaido University, Sapporo, Japan, Vol. 44, October 1984, pages 35-51.
6. Qualitative Recognition of Motion using Temporal Texture", Randal C. Nelson et al., CVGIP: Image Understanding, Vol. 56, No. 1, July, pages 78-89, 1992.
7. "Temporal Texture Modeling", Macin Olof Szummer, M.I.T. Media Laboratory Perceptual Computing Section Technical Report, No. 346, 1995.
8. "Temporal Texture Modeling", Martin Szummer et al., IEEE International Conference on Image Processing, September 1996.
9. "Image Velocity Estimation from Trajectory Surface in Spatiotemporal Space", Kazuhiro Otsuka et al., 1997 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, San Juan, Puerto Rico, June 17-19, 1997, pages 200-205.

10. "Precipitation Forecast Based on Segmentation of Radar Echo Motion Field", Kazuhiro Otsuka et al., 28th Conference on Radar Meteorology, American Meteorological Society, September 1997, pages 218-219.
11. "Feature Extraction of Temporal Texture based on Spatiotemporal Motion Trajectory", Kazuhiro Otsuka et al., IAPR International Conference pattern Recognition (ICPR '98), August 1998.

These publications are listed on the attached form PTO-1449 and copies are enclosed for the convenience of the Examiner.

It is requested that these references be considered and made of record herein.

Respectfully submitted,

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INFORMATION DISCLOSURE STATEMENT

The applicants are aware of the following references:

1) Robert M. Haralick, "Statistical and Structural Approaches to Texture", Proceedings of the IEEE, Vol.67, No.5, May 1979, pp.786-804

2) Yoshio Asuma et al., "A Method for Estimating the Advection Velocity of Radar Echoes Using a Simple Weather Radar System", Geophysical Bulletin of Hokkaido University, Sapporo, Japan, Vol.44, October 1984, pp.23-34

3) Yoshio Asuma et al., "Experiments for a Very-short-range Prediction of Snowfall Using a Simple Weather Radar System Part 1, -Outline and Possibility-", Geophysical Bulletin of Kokkaido University, Sapporo, Japan, Vol.44, October 1984, pp.35-51

4) Japanese Laid-Open Patent Application No.10-197543

5) Japanese Laid-Open Patent Application No.10-206443

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- 6) Randal C. Nelson et al., "Qualitative Recognition of Motion Using Temporal Texture", CVGIP: Image Understanding, Vol.56, No.1, July, pp.78-89, 1992
- 7) Macin Olof Szummer, "Teporal Texture Modeling", M.I.T. Media Laboratory Perceptual Computing Section Technical Report No.346, 1995
- 8) Martin Szummer et al., "Temporal Texture Modeling", IEEE International Conference on Image Processing, September 1996
- 9) Kazuhiro Otsuka et al., "Image Velocity Estimation from Trajectory Surface in Spatiotemporal Space", 1997 IEEE Computer Society Conference on Computer Vision and Pattern Recognition, San Juan, Puerto Rico, June 17-19, 1997, pp.200-205
- 10) Kazuhiro Otsuka et al., "Precipitation Forecast Based On Segmentation of Radar Echo Motion Field", 28th Conference on Radar Meteorology, American Meteorological Society, Sept. 1997, pp.218-219
- 11) Kazuhiro Otsuka et al., "Feature Extraction of Temporal Texture based on Spatiotemporal Motion Trajectory", IAPR International Conference Pattern Recognition (ICPR '98), Aug. 1998

The reference 1) is cited on page 2 of the specification.

The references 2) and 3) are cited on page 4 of the specification.

The references 4) and 5) are cited on page 6 of the specification. These references 4) and 5) were laid-open after the priority date of this application. English abstracts of these references 4) and 5) are not readily available.

The references 6) and 7) are cited on page 9 of the specification.

The reference 8) is cited on page 10 of the specification.

The references 9)-11) are the works of the present inventors.

It is thought that the subject matter of the present invention recited in the claims of this application is not shown or suggested in the above references 1)-11). More particularly, the references 1)-11) do not seem to show or suggest a method and an equipment which acquires the motion trajectory of the image contour of the target and measures the temporal features and the spatial features of the image as done in the present invention.